Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (Original): A method of manufacturing granular perpendicular magnetic recording media, comprising sequential steps of:

(a) providing a non-magnetic substrate including a surface;

(b) forming a layer stack on said surface of said substrate, said layer stack including a granular perpendicular magnetic recording layer having an exposed upper surface;

(c) generating a plasma containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element; and

(d) treating said exposed upper surface of said granular perpendicular magnetic recording layer with said plasma to form an oxidized surface layer.

2 (Currently Amended): The method according to claim 1, wherein:

step (a) comprises providing a non-magnetic substrate comprised of a non-magnetic material selected from the group consisting: of Al, NiP-plated Al, Al-Mg alloys, ~~other~~ Al-based alloys, ~~other~~ non-magnetic metals, ~~other~~ non-magnetic alloys, glass, ceramics, polymers, glass-ceramics, and composites and/or laminates of the aforementioned materials.

3 (Original): The method according to claim 1, wherein:

step (b) comprises forming a layer stack including a granular Co-based alloy perpendicular magnetic recording layer comprised of a CoPtX alloy, where X = at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC,

Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains with *hcp* lattice structure are segregated by grain boundaries comprising at least one of oxides, nitrides, and carbides.

4 (Original): The method according to claim 1, wherein:

step (b) comprises forming a layer stack including a granular Co-based alloy perpendicular magnetic recording layer comprised of a CoPtX alloy, where X = at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains with *hcp* lattice structure are segregated by grain boundaries comprising oxides.

5 (Original): The method according to claim 4, wherein:

step (b) comprises forming said granular Co-based alloy perpendicular magnetic recording layer by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element.

6 (Original): The method according to claim 5, wherein:

step (b) comprises forming said granular Co-based alloy perpendicular magnetic recording layer by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides.

7 (Original): The method according to claim 6, wherein:

step (b) comprises forming said granular Co-based alloy perpendicular magnetic recording layer by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere

containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2.

8 (Original): The method according to claim 1, wherein:

step (c) comprises generating said plasma containing at least one ionized oxygen species from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides.

9 (Original): The method according to claim 8, wherein:

step (c) comprises generating said plasma containing at least one ionized oxygen species from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2.

10 (Original): The method according to claim 8, wherein:

step (c) comprises generating a DC, RF, or microwave plasma.

11 (Withdrawn): A method of manufacturing granular perpendicular magnetic recording media, comprising sequential steps of:

(a) providing a non-magnetic substrate including a surface;

(b) forming a layer stack on said surface of said substrate, said layer stack including a granular perpendicular magnetic recording layer having an exposed upper surface and formed by reactively sputtering a target comprised of a magnetic alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element; and

(c) treating said exposed upper surface of said granular perpendicular magnetic recording layer with an oxygen-containing gas to form an oxidized surface layer.

12 (Withdrawn): The method according to claim 11, wherein:

step (a) comprises providing a non-magnetic substrate comprised of a non-magnetic material selected from the group consisting: of Al, NiP-plated Al, Al-Mg alloys, other Al-based alloys, other non-magnetic metals, other non-magnetic alloys, glass, ceramics, polymers, glass-ceramics, and composites and/or laminates of the aforementioned materials.

13 (Withdrawn): The method according to claim 11, wherein:

step (b) comprises forming a layer stack including a granular Co-based alloy perpendicular magnetic recording layer comprised of a CoPtX alloy, where X = at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains with *hcp* lattice structure are segregated by grain boundaries comprising oxides.

14 (Withdrawn): The method according to claim 13, wherein:

step (b) comprises forming said granular Co-based alloy perpendicular magnetic recording layer by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides.

15 (Withdrawn): The method according to claim 14, wherein:

step (b) comprises forming said granular Co-based alloy perpendicular magnetic recording layer by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2.

16 (Withdrawn): The method according to claim 11, wherein:

step (c) comprises generating a plasma containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element, and treating said exposed upper surface of said granular perpendicular magnetic recording layer with said plasma to form said oxidized surface layer.

17 (Withdrawn): The method according to claim 16, wherein:

step (c) comprises generating said plasma containing at least one ionized oxygen species from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides.

18 (Withdrawn): The method according to claim 17, wherein:

step (c) comprises generating said plasma containing at least one ionized oxygen species from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2.

19 (Withdrawn): The method according to claim 16, wherein:

step (c) comprises generating a DC, RF, or microwave plasma.

20 (Withdrawn): A granular perpendicular magnetic recording medium, comprising:

(a) a non-magnetic substrate having a surface; and

(b) a layer stack on said surface of said substrate, said layer stack including a granular perpendicular magnetic recording layer formed by:

(1) reactively sputtering a target comprised of a magnetic alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element; and

(2) oxidizing an exposed upper surface of said granular perpendicular magnetic recording layer by generating a plasma containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element, and treating said exposed upper surface of said granular perpendicular magnetic recording layer with said plasma.

21 (Withdrawn): The medium as in claim 20, wherein:

said substrate is comprised of a non-magnetic material selected from the group consisting of: Al, NiP-plated Al, Al-Mg alloys, other Al-based alloys, other non-magnetic metals, other non-magnetic alloys, glass, ceramics, polymers, glass-ceramics, and composites and/or laminates of the aforementioned materials; and

said layer stack includes a granular Co-based alloy perpendicular magnetic recording layer comprised of a CoPtX alloy, where X = at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains with *hcp* lattice structure are segregated by grain boundaries comprising oxides.

22 (Withdrawn): The medium as in claim 21, wherein:

said granular Co-based alloy perpendicular magnetic recording layer is formed by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element; and said exposed upper surface of said magnetic recording layer is oxidized by treatment with a plasma containing at least one ionized oxygen

species derived from a source gas comprised of a compound of oxygen and at least one other non-metallic element.

23 (Withdrawn): The medium as in claim 22, wherein:

said granular Co-based alloy perpendicular magnetic recording layer is formed by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides; and said exposed upper surface of said magnetic recording layer is oxidized by treatment with a plasma containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: nitrogen oxides, sulfur oxides, and carbon oxides.

24 (Withdrawn): The medium as in claim 23, wherein:

said granular Co-based alloy perpendicular magnetic recording layer is formed by reactively sputtering a target comprised of said CoPtX alloy in an atmosphere containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2; and said exposed, upper surface of said magnetic recording layer is oxidized by treatment with a plasma containing at least one ionized oxygen species derived from a source gas selected from the group consisting of: NO, NO_2, N_2O, N_2O_4, SO_2, CO, and CO_2.